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EXAMINER	
WILSON, ROBERT W	

ART UNIT	PAPER NUMBER
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/975,518	KAPOOR ET AL.	
	Examiner	Art Unit	
	ROBERT W. WILSON	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,29-35,38-41,43 and 44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,29-35,38-41,43 and 44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 April 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 38 is rejected under 35 U.S.C. 102(B) as being anticipated by Paulraj (U.S. Patent No.: 5,345,599)

Referring to claim 38, Paulraj teaches: signal receiver (Figure 5 or receiver using spatial filter 88 which is shown in more detail in Figure 6) said receiver comprising:

An adaptive array for receiving signals from remote units (m sub-arrays 72, 74 ,& 76 make up the adaptive array which receive signal from Transmitters or remote units per Fig 5 and per col. 7 line 49 to col. 8 line 49)

A plurality of demodulator units for processing said signals (There are d demodulators 98 per Fig 5 and Fig 6 and per col. 7 line 49 to col. 8 line 49)

A plurality of beam formers for constructing a desired signal response (There are D of the combination of weighting and summing or D beam formers per Fig 6 and per col. 7 line 49 to col. 8 line 49)

A spatial diversity combiner for removing interferences from said signal (combiner 98 per Fig 5 inherently remove interference by combining signals per col. 7 line 49 to col. 8 line 49)

3. Claim 41 & 44 are rejected under 35 U.S.C. 102(B) as being anticipated by Ward (U.S. Patent No.: 6,104,930)

Referring to claim 41, Ward teaches: a method for reducing signal interference (method described per col. 8 lines 1 to 50) said method comprising:

Assigning at least one frequency bin to a user (Assign carrier frequency f1 to MS1 or user while in B7 per col. 8 lines 1 to 50)

spacing said at least one frequency bin belonging to said user to at least one sufficiently different frequency to reduce inter-bin interference (MS1 moves to B6 and another frequency carrier or

frequency bin is assigned which is available because no inherent inter-bin interference is present. This occurs because communication over F1 is B6 was lost per col. 8 lines 1 to 50)

locating said at least one frequency bin with at least one frequency bin to other users such that direction of arrival for said user are distinctly separable (Other inherent users are present because the allocation of carrier frequency is based upon frequencies which are underutilized which implies other users are using these carrier frequencies per col. 8 lines 1 to 50)

Referring to claim 44, Ward teaches: a method (Figure 10 performs the method) for avoiding interference in communication signals said method comprising:

Partitioning available bandwidth into a plurality of frequency blocks said frequency blocks comprising a plurality of bins (Bandwidth is divided into carrier frequencies of frequency blocks and each carrier frequency has time slots or bins per col. 10 line 37 to col. 11 line 42)

Assigning as user to a bin in each of said frequency blocks (Carrier frequencies are assigned to users randomly. Slots are assigned based upon availability so a user can be assigned to a first carrier frequency with a slot and a second carrier frequency and another slot per col. 10 line 37 to col. 11 line 42)

Using signal power information to distribute said bins within said frequency blocks (The time slot or bins and carrier frequencies or blocks are available because no signals have been assigned; therefore signal power is used to as a distribution mechanism per col. 10 line 37 to col. 11 line 42)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 1, 2, 4-6, 29-30, 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti (U.S. Patent No.: 5,933,421) in view of Paulraj (5,345,599) further in view of Gardner (U.S. Patent No.: 5,260,968)

Referring to claim 1, Alamouti teaches: in a multi-point communication system having a receiver and transmitter disposed at a primary site for communication with a plurality of remote units

disposed at respective secondary sites an antenna (Figure 1 shows a Remote stations or units in communication with a Base station which has a TRANS or transmitter and receiver which are in a multi point configuration) comprising:

Multiple elements for receiving communication over a carrier frequency from said plurality of remote units (A & B per Fig 1 are elements which receive communication over F2 or carrier frequency from Remote Station U and Remote Station V respectively)

Spatial diversity (per Fig 1)

Alamouti does not expressly call for: elements being partitioned into a plurality of groups being disposed remote from one another by at least a predetermined minimum group spacing sufficient to obtain spatial diversity each group containing at least one element at least one group including multiple elements located proximate to one another and no further apart than a predetermined maximum

Paulraj teaches: elements being partitioned into a plurality of groups and each group containing at least one element at least one group including multiple elements located proximate to one another (Antenna or elements summed and weighted into d groups and each group has at least one antenna weighted per Figure 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add elements being partitioned into a plurality of groups and each group containing at least one element at least one group including multiple elements located proximate to one another of Paulraj to the processing of Almouti in order to perform spatial filtering.

The combination of Alamouti and Paulraj does not expressly call for: being disposed remote from one another by at least a predetermined minimum group spacing no further apart than a predetermined maximum

Gardner teaches: being disposed remote from one another by at least a predetermined minimum group spacing no further apart than a predetermined maximum (min and maximum per col. 6 line 1 to 27 or minimum and maximum)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the being disposed remote from one another by at least a predetermined minimum group spacing no further apart than a predetermined maximum of Gardner to the system of the combination of Almouti and Paulraj in order to improve signal reception in a multipath environment.

Referring to claim 2, the combination of Almouti, Paulraj, and Gardner teach: the communication system of claim 1

The combination of Almouti & Paulraj do not expressly call for: predetermine maximum spacing no more than one half time a wavelength

Gardner teaches: predetermine maximum spacing no more than one half time a wavelength (min per col. 6 line 1 to 27)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the predetermine maximum spacing no more than one half time a wavelength of Gardner to the system of the combination of Almouti, Paulraj, and Gardner in order to improve performance by improving spatial resolution

Referring to claim 4, the combination of Almouti, Paulraj, and Gardner teach: the communication system of claim 1

The combination of Almouti & Gardner do not expressly call for: wherein said multiple elements constitute and adaptive antenna array and each group constitutes a subarray

Paulraj teaches: wherein said multiple elements constitute and adaptive antenna array and each group constitutes a subarray (Antennas 1 through M are elements per Fig 5 and output of elements are mapped to Spatial Input Filter Input 1 to M and are weighted and summed into d groups per Fig 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add wherein said multiple elements constitute and adaptive antenna array and each group constitutes a subarray of Paulraj to the system of the combination of Almouti, Paulraj, and Gardner in order to improve performance by improving spatial resolution

Referring to claim 5, the combination of Almouti, Paulraj, and Gardner teach: the communication system of claim 1

The combination of Almouti & Gardner do not expressly call for: means for electronically steering

Paulraj teaches: means for electronically steering (output of elements are mapped to Spatial Input Filter Input 1 to M and are weighted and summed into d groups per Fig 6 which results in steering and is performed by electronic components)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add means for electronically steering of Paulraj to the system of the combination of Almouti, Paulraj, and Gardner in order to improve performance by improving spatial resolution

Referring to claim 6, the combination of Almouti, Paulraj, and Gardner teach: the communication system of claim 1

The combination of Almouti & Gardner do not expressly call for: wherein said multiple element constitute a switched beam antenna

Paulraj teaches: wherein said multiple element constitute a switched beam antenna (output of elements are mapped to Spatial Input Filter Input 1 to M and are weighted and summed into d groups per Fig 6 which results in performing switched beam antenna function)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add wherein said multiple element constitute a switched beam antenna of Paulraj to the system of the combination of Almouti, Paulraj, and Gardner in order to improve performance by improving spatial resolution

Referring to claim 29, Alamouti teaches: in a multi-point communication network (Figure 1 communication network in a multi point configuration) comprising:

A receiver and transmitter at a primary site (Base station which has a TRANS or transmitter and receiver which is at primary site per Fig 1)

A plurality of remote units disposed at second are site for communication with said receiver and transmitter at said primary site (Plurality of Remote Stations or units at secondary site which communicate with TRANS at Base Station or primary site per Fig 1)

Said primary site having an antenna including multiple elements for receiving communication over a carrier frequency from said plurality of remote units (Base Station has A & B per Fig 1 are elements which receive communication over F2 or carrier frequency from Remote Station U and Remote Station V respectively)

Spatial diversity (per Fig 1)

Alamouti does not expressly call for: elements being partitioned into a plurality of groups being disposed remote from one another by at least a predetermined minimum group spacing sufficient to obtain spatial diversity each group containing at least one element at least one group including multiple elements located proximate to one another and no further apart than a predetermined maximum

Paulraj teaches: elements being partitioned into a plurality of groups and each group containing at least one element at least one group including multiple elements located proximate to one another (Antenna or elements summed and weighted into d groups and each group has at least one antenna weighted per Figure 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add elements being partitioned into a plurality of groups and each group containing at least one element at least one group including multiple elements located proximate to one another of Paulraj to the processing of Almouti in order to perform spatial filtering.

The combination of Alamouti and Paulraj does not expressly call for: being disposed remote from one another by at least a predetermined minimum group spacing no further apart than a predetermined maximum

Gardner teaches: being disposed remote from one another by at least a predetermined minimum group spacing no further apart than a predetermined maximum (min and maximum per col. 6 line 1 to 27 or minimum and maximum)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the being disposed remote from one another by at least a predetermined minimum group spacing no further apart than a predetermined maximum of Gardner to the system of the combination of Almouti and Paulraj in order to improve signal reception in a multipath environment.

Referring to claim 30, the combination of Almouti, Paulraj, and Gardner teach: the communication network of claim 29

The combination of Almouti & Paulraj do not expressly call for: predetermine maximum spacing no more than one half time a wavelength

Gardner teaches: predetermine maximum spacing no more than one half time a wavelength (min per col. 6 line 1 to 27)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the predetermine maximum spacing no more than one half time a wavelength of Gardner to the system of the combination of Almouti, Paulraj, and Gardner in order to improve performance by improving spatial resolution

Referring to claim 32, the combination of Almouti, Paulraj, and Gardner teach: the communication network of claim 29

The combination of Almouti & Gardner do not expressly call for: wherein said multiple elements constitute and adaptive antenna array and each group constitutes a subarray

Paulraj teaches: wherein said multiple elements constitute and adaptive antenna array and each group constitutes a subarray (Antennas 1 through M are elements per Fig 5 and output of elements are mapped to Spatial Input Filter Input 1 to M and are weighted and summed into d groups per Fig 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add wherein said multiple elements constitute and adaptive antenna array and each group constitutes a subarray of Paulraj to the system of the combination of Almouti, Paulraj, and Gardner in order to improve performance by improving spatial resolution

Referring to claim 33, the combination of Almouti, Paulraj, and Gardner teach: the communication network of claim 29

The combination of Almouti & Gardner do not expressly call for: means for electronically steering

Paulraj teaches: means for electronically steering (output of elements are mapped to Spatial Input Filter Input 1 to M and are weighted and summed into d groups per Fig 6 which results in steering and is performed by electronic components)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add means for electronically steering of Paulraj to the system of the combination of Almouti, Paulraj, and Gardner in order to improve performance by improving spatial resolution

Referring to claim 34, the combination of Almouti, Paulraj, and Gardner teach: the communication network of claim 29

The combination of Almouti & Gardner do not expressly call for: wherein said multiple element constitute a switched beam antenna

Paulraj teaches: wherein said multiple element constitute a switched beam antenna (output of elements are mapped to Spatial Input Filter Input 1 to M and are weighted and summed into d groups per Fig 6 which results in performing switched beam antenna function)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add wherein said multiple element constitute a switched beam antenna of Paulraj to the system of the combination of Almouti, Paulraj, and Gardner in order to improve performance by improving spatial resolution

6. Claims 3 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti

(U.S. Patent No.: 5,933,421) in view of Paulraj (5,345,599) in view of Gardner (U.S. Patent No.:

5,260,968) further in view of Chang (U.S. Patent No.: 5,414,433)

Referring to claim 3, the combination of Almouti, Paulraj, and Gardner teach: the communication system of claim 1

The combination of Almouti , Paulraj, and Gardner do not expressly call for: predetermine minimum spacing no more than five time a wavelength

Chang teaches: predetermine minimum spacing no more than five time a wavelength (Figure 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add predetermine minimum spacing no more than five time a wavelength of Chang to the system of the combination of Almouti, Paulraj, and Gardner in order to increase the antenuation at the edge of the bandwidth

Referring to claim 3, the combination of Almouti, Paulraj, and Gardner teach: the communication network of claim 29

The combination of Almouti , Paulraj, and Gardner do not expressly call for: predetermine minimum spacing no more than five time a wavelength

Chang teaches: predetermine minimum spacing no more than five time a wavelength (Figure 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add predetermine minimum spacing no more than five time a wavelength of Chang to the system of the combination of Almouti, Paulraj, and Gardner in order to increase the antenuation at the edge of the bandwidth

7. Claims 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti (U.S.

Patent No.: 5,933,421) in view of Paulraj (5,345,599) in view of Gardner (U.S. Patent No.:

5,260,968) further in view of Reece (U.S. Patent No.: 5,771,024)

Referring to claim 35, Alamouti teaches: an adaptive antenna array architecture for communication (Figure 1 is the architecture) said architecture comprising:

A plurality of adaptive arrays for signal reception (A, B, C, and D per Fig 1 or plurality of adaptive arrays for signal reception)

A base station for controlling said adaptive antenna array structure (Figure 1 shows a base station which controls A, B, C, and D)

Spatial diversity (per Fig 1)

Alamouti does not expressly call for: wherein said plurality of antenna arrays comprise a plurality of sub-arrays, wheiren eadh sub-array includes at least two elements wherein elements in the subarrays are no further apart than a predetermined maximum element spacing or an array fixation structure for mounting said plurality of adaptive antenna arrays at desired elevation

Alamouti does not expressly call for: elements being partitioned into a plurality of groups being disposed remote from one another by at least a predetermined minimum group spacing sufficient

to obtain spatial diversity each group containing at least one element at least one group including multiple elements located proximate to one another and no further apart than a predetermined maximum

Paulraj teaches: elements being partitioned into a plurality of groups and each group containing at least one element at least one group including multiple elements located proximate to one another (Antenna or elements summed and weighted into d groups and each group has at least one antenna weighted per Figure 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add elements being partitioned into a plurality of groups and each group containing at least one element at least one group including multiple elements located proximate to one another of Paulraj to the processing of Almouti in order to perform spatial filtering.

The combination of Alamouti and Paulraj does not expressly call for: being disposed remote from one another by at least a predetermined minimum group spacing no further apart than a predetermined maximum or an array fixation structure for mounting said plurality of adaptive antenna arrays at desired elevation

Gardner teaches: being disposed remote from one another by at least a predetermined minimum group spacing no further apart than a predetermined maximum (min and maximum per col. 6 line 1 to 27 or minimum and maximum)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the being disposed remote from one another by at least a predetermined minimum group spacing no further apart than a predetermined maximum of Gardner to the system of the combination of Almouti and Paulraj in order to improve signal reception in a multipath environment.

The combination of Alamouti, Paulraj, and Gardner do not expressly call for: an array fixation structure for mounting said plurality of adaptive antenna arrays at desired elevation

Reeces teaches: An array fixation structure for mounting said plurality of adaptive antenna arrays at desired elevation (72 per Fig 6 or array fixation structure and support between 72 and light pole per Fig 6 or array support structure for position array fixation structure at desired elevation

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the array fixation structure for mounting said plurality of adaptive antenna arrays at desired elevation of Reece to the system of the combination of Almouti, Paulraj, and Gardner in order to mount the arrays in an environment that does not have a lot of space.

8. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paulraj (U.S.

Patent No.: 5,345,599) in view of Forssen (U.S. Patent No.: 5,566,209)

Referring to claim 39, Paulraj teaches the receiver of claim 38

Paulraj does not expressly call for: direction of arrival processor for calculating a direction of arrival for said signals

Forssen teaches: direction of arrival processor for calculating a direction of arrival for said signals (18 per Fig 2 and per col. 4 lines 38 to 57)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the direction of arrival processor for calculating a direction of arrival for said signals of Forssen to the processing of Paulraj in order to improve the spatial processing which will result in improved spatial interference processing.

9. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paulraj (U.S.

Patent No.: 5,345,599) in view of Alamouti (U.S. Patent No.: 5,933,421)

Referring to claim 39, Paulraj teaches the receiver of claim 38 and (segmenting available bandwidth into a plurality of frequency bins (segmenting same channel which has a number of frequencies or bins for d signals per col. 7 lines 49 to 52)

Paulraj does not expressly call for: OFDM

Alamouti teaches: OFDM (col. 2 line 65 to col. 3 line 230

It would have been obvious to add OFDM of Almouti in place of the signal (FM per col. 1 line 26 of Paulraj) in order to provide more capacity through the subchannels of OFDM.

10. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ward (U.S.

Patent No.: 6,104,930).

Referring to claim 43, Ward teaches: a method (Figure 2 performs the method) for allocating communication bandwidth; said method comprising:

The background embodiment teaches: determining a first direction of a signal arrival for a first remote user and a second direction for a second remote user (a plurality of mobiles movement are tracked which would include a first and second mobile user using a narrow angular beam which allows for determination of direction per col. 2 lines 1 to 650

The background embodiment does not expressly call for: assigning said first remote user to a first frequency bin and assigning said second remote user to a second frequency bin based at

least in part on said direction of signal arrival such that direction of signal arrival for adjacent frequency bins differs

Another embodiment teaches: assigning said first remote user to a first frequency bin and assigning said second remote user to a second frequency bin based at least in part on said direction of signal arrival such that direction of signal arrival for adjacent frequency bins differs (An assignment of a first inherent remote user is made to B1 with f20. Another or second remote user in B3 is assigned an available frequency which does not include f20 because of interference per col. 11 line 43 to col. 14 line 44)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the assigning said first remote user to a first frequency bin and assigning said second remote user to a second frequency bin based at least in part on said direction of signal arrival such that direction of signal arrival for adjacent frequency bins differs of another embodiment of Ward to the tracking system of the background embodiment of Ward in order to provide frequency allocation which improves the overall system by making more effective utilization of bandwidth which results in a performance improvement.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 38-39, 41, & 43 are rejected on the ground of nonstatutory obviousness-type

double patenting as being unpatentable over claims 1-2 & 4 of U.S. Patent No. 6,795,424

Although the conflicting claims are not identical, they are not patentably distinct from each other

because:

13. Referring to claim 38-39 of the instant application, U.S. Patent No.: 6,795,424 teaches: adaptive array (adaptive antenna array per claim 2) ; plurality of demodulators (plurality of reception points or array from remote units or demodulators per claim 1) ; plurality of beamformers (spatially filtering per claim 1 and electronically steering per claim 2); spatial diversity combiner (receiving means by focusing on received communication signal based on direction of arrival of said communication signals per claim 4. Although conflicting claims are not identical , they are not patentably distinct from each other because the instant applicant's claim 38 merely broadens claims 1-2 & 4 by eliminating plurality of means for as well as means for assigning remote units to frequency bins and means for resolving a direction of arrival of co-channel interference. It has been held that the omission of an element and its function is an obvious expedient.

In addition U.S Patent No.: 6,795,424 teaches:
Regarding instant application claim 39; U.S. Patent No.: 6,795,424 claim 1 teaches: direction of arrival processor (means for identifying direction of arrival)

14. Referring to claim 41 of the instant application, U.S. Patent No.: 6,795,424 teaches: assigning a frequency bin to a user (assign first frequency bin to a first remote or user per claim 18); spacing said at least one frequency bin (first remote allocated a first frequency bin and second remote assigned a second frequency bin adjacent and allocating of multiple frequency bins to minimize mutual inter bin interference per claim 18) ;locating said at least one frequency bin with at least one frequency of other user such that direction of arrival for said user are distinct (identifying direction of arrival of a communication signal from a remote unit second and direction of arrival distinct from first direction of arrival and assigning frequency bins to minimize mutual inter bin interference per claim 18). Although conflicting claims are not identical , they are not patentably distinct from each other because the instant applicant's claim 41 merely broadens claim 18 of U.S. Patent No.: 6,795,424 by eliminating continuously monitoring at least one parameter of the communications channels and determining allocation of said frequency bins based on said at least parameter. It has been held that the omission of an element and its function is an obvious expedient.

15. Referring to claim 43 of the instant application, U.S. Patent No.: 6,795,424 teaches: determining first direction (identifying direction of first arrival of communication from a remote unit (first remote user) per claim 18 and second remote user having an arrival angle which is distinctly separable per claim 18); assigning said first remote user a first frequency bin (assign a remote unit a first frequency bin per claim 18); assigning a second remote user to a second frequency bin based at least on said direction such that direction of signal arrival for adjacent frequency bins (assigning first frequency bin to remote and second frequency bin to remote where allocation or assignment is made to minimize mutual inter bin interference differs per claim 18). Although conflicting claims are not identical , they are not patentably distinct from

each other because the instant applicant's claim 43 merely broadens claim 18 of U.S. Patent No.: 6,795,424 by eliminating continuously monitoring at least one parameter of the communications channels and determining allocation of said frequency bins based on said at least parameter. It has been held that the omission of an element and its function is an obvious expedient.

Response to Amendment

14. Applicant's arguments with respect to claims 1-6, 29-35, 38-41, & 43-44 have been considered but are moot in view of the new ground(s) of rejection.

15. Please refer to above rejection for details.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT W. WILSON whose telephone number is (571)272-3075. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571/272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Robert W Wilson/
Primary Examiner, Art Unit 2619

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